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Katz

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(54) **METHOD AND APPARATUS FOR REDUCING DRAG IN MARINE VESSELS**

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(58) **Field of Search** ..... 701/21, 116; 244/130, 244/204, 206, 201; 114/67 R, 67 A

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(57) **ABSTRACT**

A system is disclosed that applies non-linear signal processing methods derived from theories of information and non-linear oscillations (chaos) to control the turbulent boundary layer of marine vessels in order to reduce the drag to which the vessels encountered while moving in water. The system uses measurement probes mounted along the hull of a marine vessel to provide detection markers for increase or decrease in the drag based on a prescribed fluid (i.e., air) injection and flow rate in boundary layer. The invention utilizes a differential radius (DR) to determine the minimum entropy for a given flow rate in the boundary layer which defines the optimum condition used by the system for reducing drag.

20 Claims, 3 Drawing Sheets